On restructuring infinitives in Japanese: Adjunction, clausal architecture, and phases

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Abstract

This paper investigates the syntax of Japanese restructuring verbs and makes two major claims: (i) there are (at least) three types of restructuring infinitives in Japanese, which is consistent with Wurmbrand’s (2001) approach to restructuring infinitives and (ii) there is a general ban on adjunction to complements of lexical restructuring verbs, which is best explained by an interaction of spell-out domains and Case-valuation. It is also shown that this ban regulates adverb insertion, adjective insertion, and quantifier raising.

Keywords: Adjunction; Case; Japanese; Phases; Restructuring

1. Introduction

‘Restructuring’ (i.e. clause-downsizing) has been extensively discussed in the generative literature, with a variety of approaches proposed to capture the phenomenon. Thus, while Cinque (2006) argues that all ‘restructuring’ verbs are functional heads, researchers like Hoshi (2006) and Saito and Hoshi (1998), for example, argue that ‘restructuring’ involves complex predicate formation via direct merger of the verbs. Wurmbrand (2001) pursues yet another approach and argues that there are degrees of ‘restructuring’, which are determined by the size of infinitival complements (CP, TP, vP, VP, for example), where the various sizes of infinitival complements correlate with various (non-) ‘restructuring’ phenomena.

One of the goals of this paper is to resolve this tension from the perspective of Japanese. There is considerable literature on ‘restructuring’ in Japanese (see Asano, 2007; Bobaljik and Wurmbrand, 2007; Hoshi, 2006; Kageyama, 1993; Koizumi, 1994, 1995, 1998; Kuno, 1973; Matsumoto, 1996; Miyagawa, 1987; Nakatani, 2004; Nishigauchi, 1993; Nomura, 2003, 2005; Saito and Hoshi, 1998; Shibatani, 1978; Sugioaka, 1984; Tada, 1992; Takezawa, 1987; Terada, 1990; Tomioka, 2006; Tsujimura, 1993; Ura, 1996, 1999, 2000; Yumoto, 2004; Zushi, 1995, 2008; Wurmbrand, 2001, among many others). However, to the best of my knowledge, most of the important paradigms in the context of restructuring have been addressed only partially in this literature. Hence, previous studies on Japanese restructuring constructions have not drawn a comprehensive picture that should have emerged from the observed data. I take up this issue seriously and provide a more comprehensive description of ‘restructuring’ constructions in Japanese. I show that Japanese data lead us to posit a three-way distinction in ‘restructuring’ configurations, which is broadly consistent with Wurmbrand’s (2001) proposals concerning restructuring infinitives.

A theoretical concern of this paper is a restriction on adjunction found in restructuring contexts. I argue that there is a ban on adjunction to complements of lexical verbs, which is derived through an interaction of the contextual emergence of
spell-out domains (see Bobaljik and Wurmbrand, 2005; Bošković, 2010; den Dikken, 2007; Takahashi, 2010, 2011, among others) and obligatory late insertion of adjuncts within spell-out domains (cf. Stepanov, 2001). I also argue that the constraint is a general constraint, which yields a unified account of the distribution of adverbs, adjectives, and quantifiers.

This paper is organized in the following way. In section 2, mainly based on the observations made in the literature (see Bobaljik and Wurmbrand, 2007; Matsumoto, 1996; Miyagawa, 1987; Nakatani, 2004; Tsujimura, 1993, among many others), I provide a detailed description of several restructuring constructions in Japanese and show that they do not exhibit uniform behavior. In section 3 I provide an analysis of the generalization made in section 2 and propose that there is a ban on adjunction to certain restructuring infinitives. In section 4 I extend the analysis of the ban on adjunction to other ‘restructuring’ constructions and show that the ban is actually a general constraint. In section 5 I critically discuss alternative approaches in the literature and show that they face various empirical problems. Section 6 concludes the paper.

2. Restructuring infinitives in Japanese and adverbs

This section offers a detailed description of three types of restructuring constructions and shows that they are different from each other regarding the distribution of adverbs. In particular, I discuss two types of restructuring motion verb constructions and the potential construction. I start with examples involving two types of motion verb constructions, namely, the Purpose Expression (PE) construction, and the Sequential Expression (SE) construction:

(1) Taroo-ga gakkoo-ni sono hon-o kai-ni it-ta.
   Taro-NOM school-to the book-ACC buy-NI go-PAST
   ‘Taro went to school to buy the book.’

(2) Taroo-ga gakkoo-de sono hon-o yon-de it-ta.
   Taro-NOM school-at the book-ACC read-TE go-PAST
   ‘Taro read the book at school and went (somewhere).’

The infinitive in (1) is followed by -ni while the one in (2) is followed by -te. As we will see below, both constructions involve optional clause-union effects (i.e. restructuring). However, the two constructions show different syntactic behavior in other respects.


(3) Taroo-ga eego-o/ga hanas-e-ru.
   Taro-NOM English-ACC/NOM talk-can-PRES
   ‘Taro can speak English.’

(4) Boku-ga Mary-ni Taroo-ga eego-o/*ga hanas-u-to i-e-ru.
   I-NOM Mary-DAT Taro-NOM English-ACC/NOM speak-PRES-that say-can-PRES
   ‘I can say to Mary that Taro speaks English.’

In (3), the object is marked nominative in the presence of the potential morpheme -e ‘can’. In (4), on the other hand, there is a clausal boundary between -e ‘can’ and the object and the object cannot be marked nominative. This shows that nominative Case-licensing of objects is clause-bounded.

Both the PE construction and the SE construction can involve (optional) restructuring. This is supported by the fact that the embedded objects in these constructions can be nominative when the matrix verbs are accompanied by the potential morpheme (see Miyagawa, 1987; Tsujimura, 1993, among others). I assume that this (apparent) non-local Case dependency is an indication of restructuring following a number of researchers (see Bhatt, 2005; Bobaljik and Wurmbrand, 2005, among others). This is further supported by typical distributional properties of restructuring, namely the

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2 Te is pronounced as de when the former is preceded by a verb stem with a voiced consonant (Kuno, 1973). Kuno (1973) and Martin (1975) define -te as a gerundive marker. I will not discuss the nature of -te in this paper. See Nakatani (2004) and references cited therein for discussion of -te.
requirement that restructuring infinitives must be adjacent to the matrix verbs (see Miyagawa, 1987; Tsujimura, 1993; Wurmbrand, 2007; Wurmbrand and Bobaljik, 2005, among others):

   I-NOM library-to book-ACC/NOM borrow-NI go-can-PRES  
   'I can go to the library to borrow a book.'

   I-NOM book-ACC/NOM borrow-NI library-to go-can-PRES  
   'I can go to the library to borrow a book.'

(6) a. Hanako-ga atode tosyokan-de zassi-o/ga kari-te ik-e-ru.  
   Hanako-NOM later library-at magazine-ACC/NOM borrow-TE go-can-PRES  
   'Hanako can borrow a magazine at the library and go (somewhere) later.'

   Hanako-NOM library-at magazine-ACC/NOM borrow-TE later go-can-PRES  
   'Hanako can borrow a magazine at the library and go (somewhere) later.'

When the infinitival clause is adjacent to the matrix verb, the embedded object can be marked nominative, as shown in (5a) and (6a). The clausal boundary between the matrix and the embedded clauses is transparent for nominative Case-licensing. On the other hand, in (5b) and (6b), the infinitival clause is not adjacent to the matrix verb and the embedded object cannot be nominative, which indicates that restructuring is not possible.3

In the remainder of this section, I will show based on the previous literature that the three restructuring constructions differ regarding the distribution of adverbs. In particular, it will be shown that (i) the potential construction with a nominative object allows both matrix and embedded modification, (ii) restructuring PEs allow only matrix modification, and (iii) restructuring SEs allow only embedded modification.

Let us first consider the potential construction. This construction allows two durative adverbs.

(7)  
   Taroo-wa terebi-ga 1-nen-kan 3-zikan mi-rare-ru.  
   Taro-TOP TV-NOM one-year-for three-hour watch-can-PRES  
   'For one year, Taro can watch TV for 3 hours.'  
   (Bobaljik and Wurmbrand, 2007:33; slightly modified)

The intended interpretation of this sentence is the one in which the adverb 1-nen-kan ‘for one year’ modifies the potential morpheme while the adverb 3-zikan ‘(for) three hours’ modifies the embedded verb mi ‘watch’. This example clearly shows that the potential construction allows both matrix and embedded modification.

Let us now consider restructuring PEs. The following non-restructuring PE examples in (8) and (9) (cf. the accusative Case on the object) show that non-restructuring PEs allow both matrix and embedded modification:

(8)  
   Hanako-wa [10-pun-de robusutaa-o tabe-ni] 3-zikan-de Bosuton-ni ik-e-ru.  
   Hanako-TOP 10-minutes-in lobster-ACC eat-NI 3-hours-in Boston-to go-can-PRES  
   'Hanako can go to Boston in 3 hours to eat a lobster in 10 minutes.'

(9)  
   (?)Hanako-wa 3-zikan-de Bosuton-ni [10-pun-de robusutaa-o tabe-ni] (kuruma-de) ik-e-ru.  
   Hanako-TOP 3-hours-in Boston-to 10-minutes-in lobster-ACC eat-NI car-by go-can-PRES  
   'Hanako can go to Boston in 3 hours to eat a lobster in 10 minutes (by car).'

The adverb 10-pun-de ‘in ten minutes’ modifies the event of eating a lobster and the adverb 3-zikan-de ‘in 3 hours’ modifies the event of going to Boston. Note that the interpretation is identical in the two examples, independently of the position of the matrix modifiers.4,5

3 One reviewer finds (5b) with a nominative object acceptable, especially with a pitch accent on the nominative Case-marker. I tentatively assume that the nominative object in such cases is analyzed as a major subject (see Kuroda, 1988), which I ignore in this paper, putting it aside for future research, and focus on the judgment given in the text.

4 Notice that (8) and (9) contain three predicates, namely the potential morpheme, the motion verb, and the embedded verb. As the potential morpheme is an atelic predicate, the adverbs used here, which only modify telic verbs, cannot modify the potential morpheme.

5 Note that a clear prosodic break between the motion verb and the embedded verb is needed in (9) to make sure that the construction under consideration is a non-restructuring construction (the prosodic requirement blocks the adjacency requirement). To enforce this point, an adverb can be inserted between the two verbs.
The situation is different in a restructuring context. As shown in (10) and (11), where the object gets nominative Case, restructuring is impossible with two durative adverbs; only one adverb can appear (cf. (10)). Crucially, the adverb must modify the matrix predicate (cf. (11)).

(10) *Hanako-wa 3-zikan-de Bosuton-ni 10-pun-de robusutaa-ga tabe-ni ik-e-ru.
Hanako-TOP 3-hours-in Boston-to 10-minutes-in lobster-NOM eat-NI go-can-PRES
‘Hanako can go to Boston in 3 hours to eat a lobster in 10 minutes.’

(11) Hanako-wa 3-zikan-de Bosuton-ni robusutaa-ga tabe-ni ik-e-ru.
Hanako-TOP 3-hours-in Boston-to lobster-NOM eat-NI go-can-PRES
‘Hanako can go to Boston in 3 hours to eat a lobster.’

Some clarifications are in order here. First, the above observation indicates that the restriction on adverbial modification is syntactic in nature, not semantic. Consider again (11). This example is actually felicitous in the context where Hanako can go to Boston in 3 hours to eat a lobster in 10 minutes, although the adverb 10-pun-de ‘in 10 minutes’ does not appear in the sentence. This indicates that the ungrammaticality of (10) is not caused by a semantic incompatibility.

The same distribution holds for SEs: (12) shows that two adverbs are possible in the non-restructuring version; (13) and (14) show that only one adverb can appear in the restructuring context. In contrast to PEs, however, the adverb must modify the embedded predicate.

(12) (?)Hanako-wa 3-zikan-de Bosuton-ni [10-pun-de robusutaa-o tabe-te] (kuruma-de) ik-e-ru.
Hanako-TOP 3-hours-in Boston-to 10-minutes-in lobster-ACC eat-TE (car-by) go-can-PRES
‘Hanako can eat a lobster in 10 minutes and go to Boston in 3 hours (by car).’

(13) *Hanako-wa 3-zikan-de 10-pun-de robusutaa-ga tabe-te ik-e-ru.
Hanako-TOP 3-hours-in 10-minutes-in lobster-NOM eat-TE go-can-PRES
‘Hanako can eat a lobster in 10 minutes and go (somewhere) in 3 hours.’

(14) Hanako-wa 3-zikan-de robusutaa-ga tabe-te ik-e-ru.
Hanako-TOP 3-hours-in lobster-NOM eat-TE go-can-PRES
‘Hanako can eat a lobster in 3 hours and go (somewhere).’

The difference between PEs and SEs is further supported by the distribution of instrumental adverbs. As shown in (15a), instrumental adverbs are possible in restructuring SEs. However, they are incompatible with restructuring PEs, as shown in (15b).

(15) a. Hanako-wa robusutaa-ga hasi-de tabe-te ik-e-ru. (SE)
Hanako-TOP lobster-NOM chopsticks-with eat-TE go-can-PRES
‘Hanako can eat a lobster with chopsticks and go (somewhere).’

b. *Hanako-wa robusutaa-ga hasi-de tabe-ni ik-e-ru. (PE)
Hanako-TOP lobster-NOM chopsticks-with eat-NI go-can-PRES
‘Hanako can go to eat a lobster with chopsticks.’

As shown in (16), both constructions are grammatical when the embedded object is changed to accusative (i.e. when the structure is a non-restructuring configuration).

(16) a. Hanako-wa [robusutaa-o hasi-de tabe-te] (kuruma-de) ik-e-ru. (SE)
Hanako-TOP lobster-ACC chopsticks-with eat-TE car-by go-can-PRES
‘Hanako can eat a lobster with chopsticks and go somewhere (by car).’

b. Hanako-wa [robusutaa-o hasi-de tabe-ni] (kuruma-de) ik-e-ru. (PE)
Hanako-TOP lobster-ACC chopsticks-with eat-NI (car-by) go-can-PRES
‘Hanako can go to eat a lobster with chopsticks (by car).’

Interestingly, exactly the opposite situation holds for matrix modification: while restructuring PEs allow a matrix adverb (cf. (17a)), restructuring SEs prohibit matrix adverbs (cf. (17b)). Again, in non-restructuring configurations, both PEs and SEs allow matrix adverbs.

Hanako-TOP bike-by lobster-NOM eat-NI go-can-PRES  
‘Hanako can go to eat a lobster by bike.’  

Hanako-TOP bike-by lobster-NOM eat-TE go-can-PRES  
‘Hanako can eat a lobster and go (somewhere) by bike.’  

Hanako-TOP bike-by lobster-ACC eat-NI go-can-PRES  
‘Hanako can go to eat a lobster by bike.’  

Hanako-TOP bike-by lobster-ACC eat-TE go-can-PRES  
‘Hanako can eat a lobster and go (somewhere) by bike.’  

To summarize, we have seen that (i) the potential construction allows both embedded and matrix modification, (ii) restructuring PEs only allow matrix modification, and (iii) restructuring SEs only allow embedded modification. The results are summarized in (19):

(19) | Potential | PE | SE |
--- | --- | --- | --- |
number of durative adverbs: | two | one | one |
embedded adverbs: | yes | no | yes |
matrix adverbs | yes | yes | no |

(19) strongly suggests that we need a three-way distinction among restructuring configurations, contrary to the claims that are at least implicitly made in some previous works (Cinque, 2006; Hoshi, 2006; Saito and Hoshi, 1998, among others). Thus, Cinque (2006) argues that all restructuring verbs are functional heads, assuming a single structure for all restructuring configurations.7 If we take this view, the results in (19) are difficult to account for. It is also difficult to extend Hoshi’s (2006)/Saito and Hoshi’s (1998) analysis to cover all the cases we have discussed because such an approach may not account for the variations summarized in (19). In their analysis, ‘restructuring’ configurations are obtained by directly merging ‘matrix’ verbs and ‘embedded’ verbs (see section 5 for further discussion of this approach). In the next section, I therefore propose a new analysis of the pattern in (19).

3. Analysis

To account for the distribution of adverbs in the restructuring infinitives, I essentially adopt Wurmbrand’s (2001) approach to restructuring infinitives, though the proposed analysis will depart from her proposals in some crucial respects. I propose that matrix modification is constrained by the thematic properties of verbs and that embedded modification is constrained by syntactic restrictions on adjunct insertion.

3.1. Matrix modification

Wurmbrand (2001) argues that ‘restructuring’ is not a uniform phenomenon but that there are two types of restructuring configurations: lexical and functional restructuring. Lexical restructuring verbs are fully thematic verbs (Vs) (i.e. they assign theta roles) that take very small complements (bare VPs). Crucially, infinitival complements in this configuration lack a Case-assigning head (v) (they also lack a subject). Embedded objects are thus Case-licensed by a higher functional head (v or T), yielding an (apparent) long-distance Case-licensing, as schematically shown in (20a). If lexical verbs take larger complements such as CPs, TPs, and vPs, the resulting configurations are non-restructuring configurations (though not

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necessarily full clausal complements), in which embedded objects are Case-licensed by $v$ within the infinitive as shown in (20b).

(20) a. lexical restructuring

\[ \begin{array}{c}
  \text{vP} \\
  \text{VP} \\
  \text{VP} \\
  \text{OBJ} \end{array} \]

\[
\begin{array}{c}
  \text{V} \\
  \text{V}_{\text{[CASE]}} \\
  \text{V}_{\text{[lexical/thematic]}} \\
  \text{V} \end{array}
\]

b. non-restructuring

\[ \begin{array}{c}
  \text{vP} \\
  \text{VP} \\
  \text{VP} \\
  \text{OBJ} \end{array} \]

\[
\begin{array}{c}
  \text{V} \\
  \text{V}_{\text{[CASE]}} \\
  \text{V}_{\text{[lexical/thematic]}} \\
  \text{V} \end{array}
\]

On the other hand, functional restructuring is a direct consequence of the clausal architecture. Functional restructuring verbs are functional heads (in the verbal domain) such as modals and they take infinitival complements, as shown in (21). Thus, the infinitival complement is the main predicate of the clause. Wurmbrand (2001) also proposes that functional restructuring verbs need to be classified into (purely) functional predicates, which do not establish thematic relationship with arguments (cf. FP in (21)), and semi-functional predicates, which behave like purely functional heads syntactically but take an external argument (i.e. they assign the subject theta-role) and may assign Case to an internal argument (cf. vP in (20a and b), (21), and (22)).

(21) (semi)-functional restructuring

\[ \begin{array}{c}
  \text{FP} \\
  \text{F'} \\
  \text{vP} \\
  \text{VP} \\
  \text{OBJ} \end{array} \]

\[
\begin{array}{c}
  \text{V} \\
  \text{V}_{\text{[functional/non-thematic]}} \\
  \text{V}_{\text{[semi-functional/thematic]}} \\
  \text{V} \end{array}
\]

The present study assumes the clausal architecture in (21). I also assume that what is typically referred to as vP consists of several sub-projections. More specifically, as shown in (22), there is a vP-layer which corresponds to the v-head introducing an external argument, and a lower Aspect projection (see Cinque, 2006; MacDonald, 2006; Pylkkänen, 2002, 2008; Travis, 2010 for relevant discussion).  

8 v in (22) can be further decomposed into several heads (see Pylkkänen, 2002, 2008; Travis, 2010, among others). However, I will not discuss this issue here.
(22) functional categories below vP

\[
\begin{array}{c}
vP \\
\text{SUBJ} \\
A_{sp}P \\
V P \\
\text{OBJ} \\
V \end{array}
\]

The inflectional domain and the verbal domain are thus structured hierarchically as in (23).

(23) functional restructuring verb (non-thematic) > semi-functional restructuring verb (thematic) >
aspectual functional head (non-thematic) > lexical verb (thematic)

In what follows, I will argue that (i) restructuring PE verbs are thematic lexical verbs, (ii) restructuring SE verbs are purely functional lower aspect heads, and (iii) the potential morpheme is a semi-functional v head.

To begin with, the three types of restructuring verbs occur in the hierarchical order: potential morpheme > SE verbs (VSE) > PE verbs (VPE). As shown in (24), SE verbs can appear higher than PE verbs, but not vice versa.

(24) a. John-ga hon-o/ga kai-ni it-te ko-re-ru. (VSE > VPE)
   John-NOM book-ACC/NOM buy-NI-go-TE come-can-PRES
   ‘John can go to buy books and come.’

b. *John-ga hon-o/ga kat-te iki-ni ko-re-ru. (VPE > VSE)
   John-NOM book-ACC/NOM buy-TE-go-NI come-can-PRES
   ‘lit. John can go to buy books and come (somewhere).’

Furthermore, as shown in (25) and (26), the potential morpheme can appear higher than both PE verbs and SE verbs, but not vice versa.

   John-NOM book-ACC/NOM buy-NI go-can-PRES
   ‘John can go buy books.’

b. *John-ga hon-o/ga ka-e-ni ik-u. (VPE > potential)
   John-NOM book-ACC/NOM buy-can-NI go-PRES
   ‘lit. John goes to can buy books.’

(26) a. John-ga hon-o/ga kat-te ik-e-ru. (potential > VSE)
   John-NOM book-ACC/NOM buy-TE go-can-PRES
   ‘John can buy books and go (somewhere).’

b. *John-ga hon-o/ga ka-e-te ik-u. (VSE > potential)
   John-NOM book-ACC/NOM buy-can-TE go-PRES
   ‘lit. John can buy books and go (somewhere).’

The ordering restrictions among the potential morpheme, PE verbs and SE verbs provide support for the assumption that these verbs are base-generated in different positions in the clausal architecture, as laid out in (23).

We are now ready to provide an account of the (im)possibility of modifying a restructuring predicate. I propose that only thematic projections can be modified by VP adverbs. This immediately accounts for why restructuring SEs, but not the potential morpheme and restructuring PE verbs, prohibit matrix modification (see Cardinaletti and Giusti, 2001; Cinque, 2006; Napoli, 1981; Rochette, 1988, 1990; Rosen, 1989, 1990, and especially, Tsujimura, 1993, among others). This
proposal is further supported by the fact that restructuring PE verbs can take arguments, while restructuring SE verbs cannot take arguments.

Let us first consider SE verbs. In a non-restructuring sentence, the SE verb can take a locative argument. However, in a restructuring sentence, the SE verb cannot take a locative argument (cf. Shibatani, 2007):

    Hanako-NOM library-to magazine-ACC/*NOM return-TE-go-can-PRES
    ‘Hanako can return a magazine and go to the library’.

Tosyokan-ni ‘to the library’ is disallowed when the object is nominative. Based on this observation, I conclude that restructuring SE verbs do not take arguments. The following example shows that the restructuring PE verbs can take a locative argument:

    Hanako-NOM library-to magazine-ACC/NOM return-NI-go-can-PRES
    ‘Hanako can go to the library to return a book.’

Here, the matrix verb can take a locative argument regardless of the Case of the embedded object.

To summarize, I have proposed that (i) the potential morpheme is a semi-functional verb, (ii) restructuring PE verbs are lexical restructuring verbs, and (iii) restructuring SE verbs are functional aspectual heads below vP. The distinction between restructuring PE verbs and restructuring SE verbs is supported by the fact that while the former can take arguments, the latter cannot take arguments.

3.2. Embedded modification and restructuring verbs

In this section, I provide an account of the distribution of embedded adverbs. The observation we have to account for is that while the potential morpheme and restructuring SE verbs allow embedded modification, restructuring PE verbs do not. We cannot extend the account of the impossibility of modifying restructuring SE verbs based on the lack of thematic properties to restructuring PEs because all the embedded verbs under consideration take a (nominative) object, which indicates that these verbs take arguments (i.e. they are lexical verbs). This means that these verbs do have thematic properties.

Following Wurmbrand (2001), I assume that restructuring PE verbs are lexical restructuring verbs. In other words, they are lexical verbs (Vs). However, contrary to Wurmbrand’s (2001) claim that complements of lexical restructuring verbs must be bare VPs, I assume that complements of these verbs are headed by v, which does not assign Case (see Bhatt, 2005; Takahashi, 2010, 2011, for relevant discussion). I also assume with Takahashi (2010, 2011) that v works as a phase head only if it assigns Case. Given this assumption, the complement vPs of lexical restructuring verbs are not phases. The core assumptions that I put forth for the ban on embedded modification in restructuring PEs are given below:

(29) Lexical verbs (Vs) are phase heads.

(30) Adjunction to XP is impossible if XP contains an unvalued Case-feature.

These two assumptions in tandem explain the ban on adjunction to complements of restructuring PEs in a principled way.

(29) is inspired by a proposal in Bobaljik and Wurmbrand (2005), which provides an analysis of what they call anti-reconstruction effects, which are observed cross-linguistically (see below for discussion). While I follow their insights, I interpret them in terms of the phase theory advanced by Chomsky (2000, 2001, 2004, 2008) and propose that the lexical verbs under consideration are phase heads. In other words, the matrix VP is a phase. This in turn indicates that the vP complement of a lexical verb is a spell-out domain. Spell-out domains are domains across which Agree is blocked (see Chomsky, 2000, 2001, 2004, 2008 for Agre). Thus, if there are any elements in a spell-out domain that are still not...
Case-licensed, they must move out of the domain to avoid a derivational crash (cf. Bobaljik and Wurmbrand, 2005; Bošković, 2007a). We then have a derivation like the following for restructuring PEs:

(31)

As complements of lexical verbs are spell-out domains, the vP-complement of the lexical verb in (31) is a spell-out domain. However, the object in the spell-out domain cannot be Case-licensed within the spell-out domain. The object then has to move to the Spec, VP to avoid a derivational crash at the point of the introduction of the higher V. Once the matrix v is introduced into the derivation, the moved object is Case-valued in the Spec, VP:

(32)

Here, the object in the Spec, VP is Case-valued by the matrix v and the derivation converges.

Turning now to (30), (30) states that adjunction to a phrase is constrained by Case. In particular, according to (30), adjunction to a phrase becomes possible only after all the Case-features in the phrase are valued, which forces acyclic insertion of adjuncts (cf. Stepanov, 2001). This is going to be crucial for the account of the ban on adjunction in restructuring PEs.

Having laid out the crucial assumptions for the current analysis, let us now see how they interact to exclude adjunction to complements of restructuring PE verbs:

13 I assume that the infinitival marker -ni is inserted at PF.
14 This is the crucial point of the derivation that distinguishes the derivation of restructuring PEs from that of transitive sentences. I will come back to this point below.
15 If the object is marked nominative, the Case of the object may come from T (see Koizumi, 1994, 1995, 1998; Nomura, 2003, 2005; Takezawa, 1987, among others). Then, the object in Spec, VP is Case-valued by T via Agree (see Nomura, 2003, 2005 for discussion). I will return to this point below.
16 For a possible deduction of (30), see Takahashi (2011).

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The complement vP is a spell-out domain in (33) because it is selected by a lexical verb, which is a phase head. Thus, at the point of the introduction of the matrix V, the object must move to the matrix Spec, VP. I assume that the condition on adjunction is evaluated only based on the elements in a spell-out domain. Thus, the vP complement, which is a spell-out domain, contains a ‘trivial’ chain, i.e. the copy of the object. Then, adjunction to this embedded vP is impossible due to (30). The proposed analysis predicts that matrix modification should be possible in restructuring PEs because the embedded object is Case-licensed in the matrix clause. When this higher VP is spelled-out, the ‘trivial’ chain is now the higher copy of the object that is Case-valued. Since adjuncts are inserted counter-cyclically after Case-valuation under the current analysis, adjunction is predicted to be allowed. Note that counter-cyclic adjunction to the complement vP is impossible, since this vP is already spelled-out when the object is Case-valued.

A question remains as to how the derivations converge under the proposed analysis given that the spell-out domain contains a copy of the moving element that is not Case-valued. I assume, essentially following Nunes (2004), that unvalued features of lower copies of the object are deleted at the point of Transfer to the interfaces.17 My intention here is to implement Nunes’s (2004) formal feature (FF) deletion under the model that assumes Multiple Spell-out (cf. Chomsky, 2000, 2001, 2004, 2008; Uriagereka, 1999), which Nunes does not assume. Nunes (2004) assumes that the FF-deletion process takes place in the phonological component to avoid a PF crash. Slightly departing from his original proposal, I assume that unvalued features of lower copies in spell-out domains are always deleted by FF-deletion at the point of Transfer. This is shown below:

The unvalued Case-feature in (34) disappears before it reaches the LF and PF interfaces. The derivation thus does not crash. However, we have to make sure that FF-deletion takes place only if the unvalued features are those in the copy left behind by movement. In other words, if FF-deletion were always possible, the object under consideration may not have to move out of the spell-out domain. I assume, essentially following Bošković (2007b), that the computational component

17 I thus depart from Chomsky (2001) and assume that lower copies of a chain in a spell-out domain can be deleted independently of feature checking on the top of the chain. In other words, unlike Chomsky’s (2001) system, in a non-trivial chain X₁, X₂, X₃, deletion of a feature in X₁ does not affect the feature on the lower copies.
looks at the whole phase (i.e. VP phase in (34)) at the point of Transfer and propose that the availability of FF-deletion in a spell-out domain can be determined on the basis of the elements at phase edges. Once the moving element in the phase edge and the copy of the moving element in a spell-out domain are detected, the unvalued feature of the lower copy is deleted at the point of Transfer by FF-deletion. The derivation then does not crash. In (34), the unvalued Case-feature of the object in the spell-out domain is deleted because there is a copy of the object in the VP edge. An important point here is that the unvalued feature of the lower copy in the spell-out domain is not deleted before Transfer. As a result, the adjunction operation under consideration (i.e. insertion of adverbs), which is performed counter-cyclically in the syntax, but crucially before Transfer to the interfaces, is blocked by (30).

Let us now consider how the current analysis captures matrix modification in restructuring PEs. The relevant example is repeated below:

(35)  
Hanako-wa  zitensya-de  robusutaa-ga  tabe-ni-ik-e-ru.  
Hanako-TOP  bike-by  lobster-NOM  eat-NI-go-can-PRES  
‘Hanako can go to eat a lobster by bike.’

In (35), the adverb zitensya-de ‘by bike’ is intended to modify the matrix verb ik ‘go’ and the object is marked nominative. I assume with Koizumi (1994, 1995, 1998), Nomura (2003, 2005), and Takezawa (1987), among others, that the nominative object is Case-licensed by T. Specifically, I assume with Nomura (2003, 2005) that the nominative object is Case-valued by T via Agree. Here, the moved object in the Spec, VP is Case-valued by the matrix T. Furthermore, I assume with Takahashi (2010, 2011) that v is a phase head only if it assigns Case. Consider the following step of the derivation:

(36)

(36)  
\[
\begin{array}{c}
\text{adjunction} \\
\text{VP} \quad \text{T}_{\text{CASE}} \\
\end{array}
\]

(36) illustrates that the embedded object moves to the Spec of the matrix VP once the restructuring PE verb is merged. The potential morpheme, which is represented as v\text{can}, is then merged but crucially, this v\text{can} does not assign Case (see Ura, 1996, 1999, 2000). Given the second assumption that v is a phase head only if it assigns Case, v\text{can} is not a phase. This in turn indicates that there is no spell-out domain between the object and T. Therefore, the nominative object can be Case-valued by T via Agree. Adjunction is then predicted to be allowed. Nothing changes if the nominative object moves to Spec, TP (as in Koizumi, 1994, 1995, 1998; Nomura, 2003, 2005) because the object can move after Case-valuation. This is different from the case of the embedded vP in (34) where the object must move before Case-valuation. The crucial point in the derivation of the embedded vP in (34) is that there is a phase before the introduction of the matrix Case-licenser.

The proposed analysis also correctly predicts that embedded modification should be possible in restructuring SEs and the potential construction. The relevant data are repeated below:

(37)  
Hanako-wa  robusutaa-ga  hasi-de  tabe-te-ik-e-ru.  
Hanako-TOP  lobster-NOM  chopsticks-with  eat-TE-go-can-PRES  
‘Hanako can go to eat a lobster with chopsticks.’

(38)  
Taro-ga  robusutaa-ga  hasi-de  tabe-rare-ru.  
Taro-NOM  lobster-NOM  chopsticks-with  eat-can-PRES  
‘Taro can eat a lobster with chopsticks.’

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In both of the above examples, the adverbs modify the embedded verbs. Consider the following derivation for the potential construction and restructuring SEs (recall that restructuring SE verbs (cf. Asp<sub>go</sub> in (39)) are located below the potential morpheme (cf. v<sub>can</sub> in (39))):

(39) Restructuring SEs/the potential construction

As in the case of the potential construction discussed above, there are no spell-out domains between the object and T. The object can then be Case-valued in situ via Agree. VP adjunction is thus predicted to be possible.

At this point, it is worth discussing some examples that are potentially problematic for the analysis I am pursuing. Let us first consider a simple transitive sentence:

(40) John ate sushi with chopsticks.

Here, the object is Case-valued by v and VP adjunction is apparently allowed, given that the adjunct *with chopsticks* does not cause ungrammaticality. What is important here is that VP is a spell-out domain (Chomsky, 2000, 2001, 2004, 2008). The question is then why VP adjunction is possible here under the proposed analysis. Consider the following derivation:

(41) John [v -atei [VP t susi[CASE] [with chopsticks]].

As noted above, I assume with Takahashi (2010, 2011) that vP constitutes a derivational phase only if v assigns Case. This in turn implies that spell-out domains, which are complements of phase heads, emerge only at the point of Case-valuation. The object in the above example is then Case-valued in the spell-out domain, given that the object is base-generated within the VP. On the other hand, in the case where adjunction is banned, hence adverbial modification is impossible, the spell-out domain emerges before the introduction of v. Consider the following derivation including a restructuring PE verb:

(42) [VP go [VP eat sushi[CASE] [with chopsticks]]].

Assuming that the derivation proceeds in a bottom-to-top manner, the embedded VP becomes a spell-out domain at the point of merger of the matrix V. Thus, the Case-feature of the embedded object necessarily remains unvalued if the object does not move out. The object then moves out to avoid a derivational crash.

Next, let us consider the following ECM construction, which I assume involves overt object shift:

(43) a. I believe him to have been hit with a stick.

b. [CP C [TP1 I [v-believei [VP1 himj [t [TP2 t] to [VP2 have [VP3 been [v-hitk [VP4 t] with a stick]]]]]]]]

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Here, the ECMed subject, which is base-generated in VP₄, is Case-licensed by the matrix v and adjunction to VP₄ is apparently allowed. This data poses a question because the proposed analysis might predict that adjunction to the lowest VP should be impossible. If the ECM verb believe is a lexical verb, then the TP complement (TP₂) is a spell-out domain. As a result, the object in VP₄ would have to move out of this domain for Case. Though I do not have a complete answer to this question, I would like to suggest two potential solutions. First, we may follow Chomsky (2008) and assume that TP can be a spell-out domain only if it is selected by C. As a result, the TP complement of the ECM verb is not a spell-out domain. The ECMed subject is then Case-valued before movement so that adjunction to the embedded VP is allowed. The other possibility is to modify the definition of spell-out domains. While complements of ECM verbs are TPs, those of restructuring PEs are vPs. This difference in the size of the infinitival complement might be related to the definition of spell-out domains. In other words, complements of lexical verbs must be ‘small enough’ (i.e. vP, not TP) to qualify as spell-out domains.

To summarize, I have argued in this section that the ban on adjunction to complements of certain restructuring verbs can be explained in terms of spell-out domains and the timing of adjunction within spell-out domains. In the next section, I explore further ramifications of this analysis and show that other adjunction operations (adjective insertion and quantifier raising) also obey the proposed constraint.

4. Further extensions

I have so far argued that there is a ban on adjunction to complements of restructuring PE verbs and that the ban follows from the two assumptions:

(44) Lexical verbs (Vs) are phase heads.

(45) XP cannot be a target of adjunction if it has an unvalued Case-feature.

If these assumptions are correct, we would expect to observe a similar ban on adjunction in other constructions. In this section, I argue that this is indeed the case. The discussion concerns infinitival complements of wasure ‘forget’ and Japanese light verb constructions. The former gives us a case of QR and the latter gives us a case of adjective insertion.

4.1. Infinitives with wasure ‘forget’: the Case of QR

In this section I discuss infinitives with wasure ‘forget’ to demonstrate that the ban on adjunction is observed in these restructuring infinitives. wasure-infinitives show the anti-reconstruction effect, which motivates the analysis in terms of agreement domains in Bobaljik and Wurmbrand (2005) briefly noted above. A relevant example is given in (46):

(46) Taroo-wa ringo-dake-o tabe-wasure-ta.

Taro-TOP apple-only-ACC eat-forget-PAST

‘Taro forgot to eat only apples.’ (only > forget, *forget > only) (Koizumi, 1995:56)

(46) shows that the embedded object must take scope over the matrix predicate (see Koizumi, 1995; Yumoto, 2004). Under the current proposal, the example has the following derivation:

(47)
The complement of wasure 'forget' is a spell-out domain hence the object has to move to the matrix VP. The moved object is Case-licensed by the matrix v after merger of the matrix V. This object takes scope over wasure 'forget' because it is located above wasure 'forget'.

What is particularly interesting here is the fact that even non-Case marked elements show the anti-reconstruction effect (cf. Saito and Hoshi, 1998):

(48) Taroo-wa hon-o Mary-dake-kara kari-wasure-ta.
    Taro-TOP book-ACC Mary-only-from borrow-forget-PAST
    'Taro forgot to borrow books only from Mary.' (only > forget, *forget > only)

(48) involves a PP argument, which does not receive Case from the matrix v. Dake 'only' contained in the PP must take scope over wasure 'forget'. A number of authors have argued that dake 'only' undergoes QR (see Futagi, 2004; Goro, 2007; Sano, 1985; Shoji, 1986, among many others), which I assume in this paper. I also assume that QR of dake 'only' must target a propositional node (i.e. vP) (Bobaljik and Wurmbrand, 2007; Goro, 2007). Assuming that QR is a syntactic adjunction operation (May, 1985), we now have an account of (48). Consider the following derivation:

(49)

(49) shows that the embedded vP, which is a spell-out domain, contains a copy of the object with an unvalued Case-feature. The proposed condition on adjunction predicts that adjunction to this vP should be impossible even though the vP is a propositional node (see also Takahashi, 2010, 2011). Then, the quantifier cannot adjoin to this vP. Given that the object needs Case and that dake 'only' must undergo QR, the only possible derivation is the one in which the PP, as well as the object, move to the matrix VP via scrambling, the quantifier in the PP then undergoing QR (adjunction) to the matrix vP:

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20 The analysis predicts that the ban on adjunction to complements of wasure should be at work, which is indeed the case. See Tomioka (2006) and Yumoto (2004). I will discuss Tomioka’s (2006) analysis in section 5.2.

21 For arguments that there is QR in languages that are considered to be scope rigid (e.g., German and Japanese), see Bobaljik and Wurmbrand (2012), Fitzgibbons (2010), Oh (2008) and Wurmbrand (2008).

22 I assume with Bobaljik (1995) and Saito (2005), among others, a model where ‘overt’ operations and ‘covert’ operations take place within a single cycle. I also assume that QR is a movement operation where the tail of the chain is pronounced (Fox and Nissenbaum, 1999).

23 Evidence for this claim will be provided later in this section.

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After scrambling of the PP to the matrix VP, the quantifier in the PP undergoes QR to the matrix vP, which is a node of type t. We thus capture the anti-reconstruction effect with PPs. It is interesting to note that Koizumi (1995) briefly considers the possibility of QR in the context of restructuring infinitives and states as follows: “what we have to say in the case of the Control construction … is that QR may not be too short. Current syntactic theories, including GB theory, do not have any theoretical device to cope with such a situation” (Koizumi, 1995:81; emphasis mine).24 What I have tried to do here is to capture the effect in question.

One potential alternative analysis of the data in question would be an analysis in terms of lexical compounds in the sense of Kageyama (1993). Under this analysis, complex predicates with wasure ‘forget’ do not have any internal syntactic structure. Hence, embedded quantification is predicted to be impossible because there should be no “embedded” clause.25 One might also wonder if this anti-reconstruction effect with PPs could follow from the assumption that complements lack positions where quantifiers can potentially adjoin to (e.g. vP) (cf. Tomioka, 2006; Wurmbrand, 2001). Thus, if complements of lexical verbs lack a vP projection, quantifiers in the complements must adjoin to matrix vPs, which yields the anti-reconstruction effect.

Let us now consider examples that involve causatives, which circumvents these possibilities. I briefly discuss the causative construction and the distribution of binders of zibun ‘self’ in Japanese. Consider the following causative sentence:

(51) Taroo-ga Hanako-ni hon-o sute-sase-ta.
Taro-NOM Hanako-DAT book-ACC discard-make-PAST
‘Taro made Hanako discard a book.’

(51) is analyzed as having a bi-clausal structure, which is motivated by the following observation concerning zibun ‘self’ (see Kuno, 1973; Kuroda, 1965, among others):

(52) Taroo-ga Hanako-ni zibun-no hon-o sute-sase-ta.
Taro-NOM Hanako-DAT self-GEN book-ACC discard-cause-PAST
‘Taro made Hanako discard his/her book.’

24 Note, however, that there is a ban on movement that is too short, often referred to as anti-locality (Abels, 2003; Bošković, 1994; Grohmann, 2000; Saito and Murasugi, 1999, among many others).
25 See Koizumi (1995) for arguments against this analysis.
Here, the reflexive zibun ‘self’ can refer to either Hanako or Taro. Given the standard assumption that the antecedent of zibun ‘self’ must be the subject of a clause, this shows that (52) has a bi-clausal structure. Following Harley (2008), Murasugi and Hashimoto (2004), and Saito (2006a), I assume that lower clauses of causative constructions are vPs and subjects in the relevant sense are elements in Spec, vP. Hanako in (52) thus occupies the Spec of the lower vP. Consider now the following example:

(53) Sensee-i wa gakusee-ni sono-nyuusu-o zibun-ji no ryosin-dake-ni
teacher-TOP student-DAT that-news-ACC self-GEN only-to
hookoku-sase-wasure-ta.
report-cause-forget-PAST
‘The teacher, forgot to make the student report the news only to his parents.’

In (53), wasure ‘forget’ takes a causative construction, which involves a vP complement. This is shown by the fact that the dative causee can be the subject of zibun ‘self’. Importantly, we still observe the anti-reconstruction effect with the PP, dake ‘only’ obligatorily taking scope over wasure ‘forget’. If the anti-reconstruction effect were to be obtained by the lexical compounding analysis, sentences like (53) should be predicted to be impossible, because the complement of wasure ‘forget’ contains a vP complement, which indicates that the complement has internal structures. Furthermore, if the anti-reconstruction effect on QR in (48) were to be obtained by assuming a lack of a proper adjoining position (i.e. vP), dake ‘only’ should still be able to take scope under wasure ‘forget’, contrary to fact. (53) thus gives further credence to the domain-based analysis entertained here.26

Let us now consider how the proposed analysis captures the above facts. The crucial assumptions are repeated below:

(54) Lexical verbs (Vs) are phase heads.
(55) XP cannot be a target of adjunction if it has an unvalued Case-feature.
(56) vP constitutes a derivational phase only if v assigns Case (Takahashi, 2010, 2011).

Let us first consider how Case-marking takes place in the causative construction:

(57) a. John-ga eego-?o/ga wakar-u.
John-NOM English-ACC/NOM know-PRES
‘John understands English.’

Mary-NOM John-DAT English-ACC/NOM know-cause-PRES
‘Mary makes John understand English.’

(Takahashi, 2010:338)

In (57a), it is only marginally acceptable to have accusative Case on the object. However, in (57b), where the causative morpheme selects wakar ‘understand’, the accusative Case is fully acceptable while nominative marking is impossible. This indicates that the accusative Case of the object in (57a) comes from -(s)ase ‘cause’, rather than wakar ‘understand’. This contrast suggests that the embedded accusative objects in causative constructions are Case-valued by matrix predicates.27 This point is quite important because it shows that the verbal projection of the complement of the causative morpheme does not constitute a phase, given (56). We can then assume the following derivation for the causative construction. I assume with Harley (2008), among others, that the causative morpheme -(s)ase ‘cause’ is an exponent of the matrix v (cf. vcause in (58)), which selects vP:

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26 The data also provide independent evidence that complements of lexical restructuring verbs such as wasure ‘forget’ can be larger than VPs, which is consistent with the analysis proposed in this paper. This was shown by the fact that wasure ‘forget’ in (53) takes a causative construction, which clearly involves a vP complement. See section 5.1 for similar observations.

27 I assume with Koizumi (1995) that the dative causee is a PP in Japanese.
Here, the Case of the embedded object is licensed by the matrix $v$. This object does not have to move for Case because there is no relevant spell-out domain before Case-valuation of the object. Now, consider the following derivation, which corresponds to (53):

The complement of wasure ‘forget’ in (59) is a causative sentence. As wasure ‘forget’ is a lexical verb, the complement is a spell-out domain. As a result, the embedded object must move out of this domain for Case. As the spell-out domain contains an unvalued Case-feature, adjunction (i.e. QR) to this VP node is predicted to be impossible. We thus capture the anti-reconstruction effect in the causative construction.\(^\text{28}\)

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\(^{28}\) As pointed out by one reviewer, the analysis predicts that embedded modification should be impossible in examples like (53). This prediction is borne out. Consider first the following example:

(i) 

This example contains an adverb mata ‘again’. Mata ‘again’ can modify either the event of discarding (in which case Hanako could have discarded a book previously without being forced by Taro) or the event of causing (in which case Taro did make Hanako discard a book previously). The example is thus ambiguous. However, the following example, where the causative construction is selected by wasure ‘forget’, is unambiguous:

(ii) 

Mata ‘again’ in this example can only modify wasure ‘forget’. Hence the example only means that the event of Taro’s forgetting happened again, which shows that embedded modification is impossible in this example. See sections 5.1 and 5.2 for discussion.
To conclude, I have argued in this subsection that infinitives with wasure ‘forget’, which show the anti-reconstruction effect, provide further evidence for the analysis of the ban on adjunction proposed in this paper. In particular, it was shown that quantifier raising, as well as adverb insertion, obey the adjunction constraint.29

4.2. Japanese light verb constructions as lexical restructuring: a preliminary analysis

In this subsection I briefly discuss Japanese light verb constructions (henceforth LVC) and provide a further argument for the analysis proposed in this paper. Examples of LVCs are given below (see Grimshaw and Mester, 1988; Saito and Hoshi, 2000; Terada, 1990, among many others):

(60) a. John-wa [NP zaisan-no bossyuu]-o si-ta.
   John-TOP property-GEN confiscation-ACC do-PAST
   ‘lit. John did confiscation of property.’

In (60a), zaisan ‘property’ is theta-marked by the verbal noun bossyuu ‘confiscation’ and is located in the projection of the verbal noun bossyuu ‘confiscation’, as shown by the fact that zaisan ‘property’ is genitive-marked (cf. Kitagawa and Ross, 1982).30 On the other hand, in (60b), zaisan ‘property’ receives accusative Case, which indicates that it is Case-licensed outside of the NP. This construction is called light verb construction because the verb su ‘do’ does not seem to assign any theta-roles to its arguments (but see below for further discussion). (60b) is marginal due to the ‘surface’ double-o constraint, which roughly states that there cannot be more than one accusative phrase (see Harada, 1973, 1975; Hiraiwa, 2010; Sells, 1988; Shibatani, 1973, among others, for relevant discussion). Importantly, the violation can be circumvented by some syntactic operations such as clefting. Consider the following example that involves clefting:

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29 This analysis predicts that nominative objects in the potential construction, which allows embedded modification, should be able to take scope under the potential morpheme. Consider first (i) (the judgments are Tada’s (1992)):  

(i) a. Taroo-ga migime-dake-o tumur-e-ru.
   Taro-NOM right.eye-only-ACC close-can-PRES
   ‘Taro can close only his right eye.’ (only > can, can > only)

   Taro-NOM right.eye-only-NOM close-can-PRES
   ‘Taro can close only his right eye.’ (only > can, *can > only)  

In both examples, the verb tumur ‘close’ is accompanied by the potential morpheme -e ‘can’. In (ia), the object migime ‘right eye’ is marked accusative and it takes scope under the potential morpheme. On the other hand, in (ib), the object is marked nominative and can take scope over the potential morpheme. It has been assumed that the nominative object must take scope over the potential morpheme. However, Nomura (2003, 2005) suggests that given an appropriate context, nominative objects can take scope under the potential morpheme:

(ii) Taroo-ga koyubi-dake-ga mage-rare-ru no-wa sit-te i-ta-ga (kare-ga)
   Taro-NOM pinkie-only-NOM crook-can-Pres that-TOP know-PROG-PAST-but, (he-NOM)
   kusuriyubi-dake-ga mage-rare-ru no-ni-wa odoro-ita.
   ring.finger-only-NOM crook-can-PRES that-DAT-TOP surprise-PAST
   ‘I have known that Taro can crook only his pinkie but I am surprised that he can also crook only his ring finger.’  

Nomura’s (2003, 2005) observation is thus consistent with the analysis in this paper. As scope facts of nominative objects require a careful investigation, I leave this issue open in this paper. See Koizumi (2008) for a possible account of the preference for the wide scope interpretation of nominative objects (see also Nomura, 2005).

30 Any PP/DP in a nominal projection must be marked with genitive Case in Japanese:

(i) a. Hanako-*~(no) hon
   Hanako-GEN book
   ‘Hanako’s book’

b. Hanako-kara-*~(no) tegami
   Hanako-GEN letter
   ‘A letter from Hanako’

In (ia), the possessor NP Hanako is marked genitive, and in (ib), the PP Hanako-kara ‘from Hanako’ is marked genitive. See Kitagawa and Ross (1982) for discussion.
This example shows that the surface double-o constraint observed in (60b) is suppressed under clefting. Following Hiraiwa (2010), among others, I assume that the marginal status of (60b) is due to the surface filter, which disallows two accusative phrases in certain syntactic domains.31

In this section I offer a preliminary analysis of LVCs in terms of lexical restructuring infinitives. More precisely, I will develop a version of the heavy verb analysis of LVCs (see Kuo, 2009; Terada, 1990; Uchida and Nakayama, 1993, among others) within the system I have adopted.

Consider the examples in (62). Kurogi (2002) observes that adverbs, but not adjectives, can appear in LVCs with double accusatives, which is shown in (62c) and (62d):

John-TOP quick property-GEN confiscation-ACC do-PAST
‘lit. John did quick confiscation of property.’

John-TOP quickly [property-GEN confiscation-ACC do-PAST
‘lit. John quickly did confiscation of property.’

c. John-wa zaisan-o zinsoku-na [bossyuu]-o si-ta.
John-TOP property-ACC quick confiscation-ACC do-PAST
‘lit. John did quick confiscation of property.’

d. ??John-wa zinsoku-ni zaisan-o [bossyuu]-o si-ta.
John-TOP quickly property-ACC confiscation-ACC do-PAST
‘lit. John quickly did confiscation of property.’

(Kurogi, 2002:31; slightly modified/glosses and translations by the author)

In (62a and b) the argument of the verbal noun is Case-licensed within the verbal noun projection. In these examples, an adjective can appear in the verbal noun projection (cf. (62a)) and an adverb can modify the matrix verb (cf. (62b)). In (62c and d), on the other hand, the argument of the verbal noun is Case-licensed by the matrix v, as indicated by the fact that the argument receives accusative Case. The contrast between (62c) and (62d) shows that the adverb can appear in this construction, but the adjective cannot.32,33 This paradigm receives a straightforward explanation under the proposed analysis. I assume that su ‘do’ in LVCs is actually a heavy (i.e. lexical) verb as argued by Kuo (2009), Terada (1990), and

31 This ‘surface’ double-o constraint should be distinguished from the constraint that rules out double accusatives in causative constructions, which are totally ungrammatical (see Harada, 1975, among others):

(i) Mary-ga John-*o/ni hon-o yom-a-ase-ta.
   Mary-NOM John-ACC/DAT book-ACC read-cause-PAST
   ‘Mary made John read a book.’

(ii) [CP [TP Mary-ga John-*o/ni ni yom-a-ase-ta] no]-wa hon-o da.
    Mary-NOM John-ACC/DAT read-cause-PAST that-TOP book-ACC COP
    ‘It was a book that Mary made John read.’

Double accusatives are banned in the causative construction as shown in (i). The sentence is ungrammatical even if clefting takes place, as shown in (ii).

32 Note that the order between the adjective and the verbal noun does not affect the ungrammaticality of (62c). Thus, the following example is ungrammatical.

(i) *John-wa zinsoku-na zaisan-o [bossyuu]-o si-ta.
   John-TOP quick property-ACC confiscation-ACC do-PAST
   ‘lit. John did quick confiscation of property.’

33 (62d) has a degraded status due to the surface double-o constraint, but it is clearly better than (62c). This point becomes clear once we apply clefting to (62c) and (62d):

(i) [CP [TP John-ga *zinsoku-na/zinsoku-ni bossyuu-o si-ta] no]-wa zaisan-o da.
   John-NOM quick/quickly confiscation-ACC do-ACC that-TOP property-ACC COP
   ‘lit. It was property that John did quick confiscation of.’

There is no violation of the double-o constraint due to the application of clefting. While adverbial modification is possible, adjectival modification is impossible, which further confirms the contrast observed in (62). I thank to one reviewer for bringing the relevance of the examples like (i) to my attention.
Uchida and Nakayama (1993). This assumption is supported by the fact that non-agentive subjects are prohibited in LVCs (see Kuo, 2009; Miyagawa, 1989; Tsujimura, 1990; Saito and Hoshi, 2000 for discussion):

(63) *Nimotu-wa Oosaka-ni tootyaku-o si-ta.
package-TOP Osaka-to arrival-ACC do-PAST
‘The package arrived in Osaka.’

(Kuo, 2009:173; cf. Grimsahw and Mester, 1988)

This example shows that subjects of LVCs cannot be inanimate, which in turn indicates that si ‘do’ in fact assigns a theta-role to the subject (but see Saito and Hoshi, 2000; Saito, 2006b for alternative explanations of the data). Second, I assume that adjectives undergo adjunction (see Bösković, 2010 for recent evidence to this effect). The first assumption predicts that the complement of su ‘do’ is a spell-out domain, which should force the argument of the verbal noun to move out of the nominal projection when the argument cannot get its Case licensed within the spell-out domain. Given the second assumption, just like adverbs, adjectives are subject to the condition on adjunction I have proposed. Having laid out the assumptions for the analysis, let us go back to the analysis of the paradigm. In (62a and b), the argument of the verbal noun is Case-licensed within the NP, which is the complement of su ‘do’. The complement NP is a spell-out domain. Since the argument does not need to move out of the complement NP for Case, adjunction to the complement is allowed, as shown in (62a). Also, nothing bans adverbial modification of the matrix verb, which is indeed allowed, as shown in (62b). The crucial contrast we have to account for is the one between (62c) and (62d). Let us consider the following derivation:

(64)

I assume that NP is selected by n (but nothing hinges on this assumption). The nP here is a spell-out domain because it is the complement of su ‘do’. As there is no Case-assigner within the nP, the object has to move out of this domain for Case, hence it moves to the Spec, VP. As the lower copy of this object has no Case, adjunction to the NP and the nP (i.e. adjective insertion) is impossible. (62c) thus follows. As Case of the moved object is licensed by the matrix v, counter-cyclic adjunction to the matrix VP (i.e. adverb insertion) is allowed, which results in (62d).

Although the full analysis of LVCs in Japanese is beyond the scope of the present study, I would like to consider here briefly some examples that are discussed in Kurogi (2002). Kurogi (2002) argues that the adverb in (62d), which is repeated below, in fact modifies the verbal noun, rather than the verb.

(65) a. ??John-wa zaisan-o zinsoku-ni [bossyuu]-o si-ta.
John-TOP property-ACC quickly confiscation-ACC do-PAST
‘lit. John quickly did confiscation of property.’

John-TOP property-ACC quick confiscation-ACC do-PAST
‘lit. John did quick confiscation of property.’

(Kurogi, 2002:31; slightly modified/glosses and translations by the author)

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34 I do not intend to claim that nominal complements of lexical verbs are always spell-out domains. Thus, in transitive sentences like (41), objects do not constitute a spell-out domain. A question remains as to when nominal complements constitute spell-out domains. See Takahashi (2011) for relevant discussion.
He provides the following data as evidence to this effect:

(66) *John-wa zaisan-o [bossyuu]-o zinsoku-ni si-ta.
    John-TOP property-ACC confiscation-ACC quickly do-PAST
    ‘lit. John quickly did confiscation of property.’

(Kurogi, 2002:32; slightly modified/glosses and translations by the author)

The point of this observation is that the adverb is adjacent to the verb but the sentence is ungrammatical. Kurogi (2002) thus concludes that the adverb does not modify the verb. This interesting observation can be accounted for under the present analysis. I suggest that (66) violates Abels’s (2003) Stranding Generalization, which prohibits movement of complements of phase heads (see Abels, 2003 for details). In (66) the complement which contains bossyuu ‘confiscation’ is moved out of the VP phase headed by si ‘do’. The derivation thus violates the generalization.36

To conclude, I have argued in this subsection that the distribution of adjuncts in Japanese light verb constructions receives an account under the theory proposed here. In particular, I proposed that light verb constructions in Japanese are best analyzed as lexical restructuring constructions. If the analysis proposed in this section is correct, it adds another case to the ban on adjunction, namely the ban on insertion of adjectives.

5. Comparison with alternatives

In this section I consider several proposals that could be extended to account for the ban on embedded modification or those that are specifically made to account for the ban on embedded modification.

5.1. Tomioka (2006)

Tomioka (2006) proposes that complements of lexical restructuring verbs lack a projection that can host adverbs (i.e. voiceP, which introduces an agent as its Spec (see Kratzer, 1996; Pylkkänen, 2002, 2008 for discussion)). Consider the following structures:

(67) a. non-restructuring     b. restructuring

adjunction→voiceP
    Agent
    voice'

causeP
    voice
    *adjunction

causeP

OBJ
    V

cause

OBJ
    V

(67a), which is a non-restructuring construction, involves voiceP, which can host adverbs. On the other hand, (67b), which is a restructuring construction, does not involve voiceP, hence there is no way to insert adjuncts (and subjects). This analysis seems to correctly capture the fact that complements of certain lexical verbs disallow adjunction. However, it faces difficulties with more complex cases. I will now introduce a phenomenon that I will call additional ban on adjunction hereafter. Consider the following example of restructuring PEs, where the motion verb takes vP as its complement:

(68) Titioya,-ga musuko,-ni zibuni/j-no hirugohan-o/ga tabe-sase-ni ik-e-ru.
    father,-NOM son,-DAT self,i/j-GEN lunch-ACC/NOM eat-cause-NI go-can-PRES
    ‘The father, can go to make his son,i eat his,i lunch.’

35 I thank Susi Wurmbrand for suggesting this analysis.
36 There are other interesting data in Kurogi’s work that are worth investigating to complete the proposed analysis of light verb constructions. I would like to address those data in future research.
37 Tomioka’s (2006) discussion concerns infinitival complements of wasure ‘forget’. Note also that Tomioka (2006) assumes that vP actually has layers. Thus, the head that is responsible for the semantics of causation and the one that is responsible for introducing Agents and the Case of objects are distinct for Tomioka (2006). See also Kratzer (1996) and Pylkkänen (2002, 2008).
The lowest object in (68) can be marked nominative or accusative. Regardless of the Case of the object, the sentence is ambiguous; zibun 'self' can refer to either titioya 'father' or musuko 'son'. The fact that zibun 'self' can refer to the dative causee indicates that there is a VP complement in the causative construction.

Significantly, adverbial modification of the most embedded verb is impossible when the embedded object is marked nominative:

(69) a. Titioya-i-ga musuko-ni zibun-no hirugohan-o hasi-de tabe-sase-ni ik-e-ru.

father NOM son DAT self GEN lunch ACC chopsticks with eat cause NI go can PRES

‘The father can go to make his son eat his lunch with chopsticks.’


father NOM son DAT self GEN lunch NOM chopsticks with eat cause NI go can PRES

‘The father can go to make his son eat his lunch with chopsticks.’

Here, we have an adverb hasi-de 'with chopsticks', which is intended to modify the verb tabe 'eat'. In (69a), the embedded object is marked accusative and the adverb is allowed. On the other hand, in (69b), the embedded object is marked nominative and the adverb is now disallowed. Importantly, (69b) shows that there is a ban on adjunction to predicates embedded in complements of lexical verbs, which I call *additional ban on adjunction*.

Having introduced the additional ban on adjunction, we can go back to the discussion of Tomioka's (2006) proposal. Under Tomioka's (2006) analysis, it is unclear how this ban can be explained. There are two reasons for this conclusion. First, as the analysis is stated in terms of a selectional property (of restructuring verbs), which works locally, it is difficult to explain the additional ban on adjunction, which takes place in complements that are not directly selected by restructuring verbs. Second, in (69b), the complement of the restructuring verb does seem to have voiceP. We have seen that the dative causee in the causative construction is a subject, which is located in Spec, vP. This in turn indicates that the head that hosts the dative causee (i.e. the embedded v) should be a voice head. Then, we have an example in which adjunction is banned even in the presence of voiceP. All of these considerations point to the conclusion that Tomioka's (2006) proposal is insufficient to capture the full range of relevant facts. On the other hand, the additional ban on adjunction receives an account under the present analysis, which provides the following derivation for (69b):

(70)
Here the embedded verb $X_1$ is directly merged to the restructuring verb $X_2$. This analysis can capture the ban on
adjunction to complements of restructuring verbs if we assume that adjuncts need to modify phrasal categories. This is so
because there is no phrasal complement that adjuncts could adjoin to (see Yumoto, 2004 for somewhat relevant
discussion). Furthermore, if we assume with Saito and Hoshi (1998) that the object that is base-generated above the
complex head asymmetrically c-commands $X_2$ in (71), the anti-reconstruction effect discussed earlier also follows.

The complex head analysis armed with the assumption concerning phrasal modification made here is also not without
problems. In particular, the additional ban on adjunction I have introduced raises a question for this approach, because
nothing bans the following structure:

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(72)
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Here, the causative morpheme and the lexical restructuring verb form a complex head but the complement of the
causative morpheme is a VP, which can in principle host adjuncts. One could postulate the following structure, in which all
the verbs are merged together:

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(73)
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In (73) all the verbs are merged together to form a complex head. The additional ban on adjunction can be captured
because there are no projections to adjoin adverbs below the restructuring verb (cf. $V_{go/forget}$ in (73)). While this structure is
not excluded under the complex head analysis, the real problem is that it is unclear under this analysis how (72) and (73)
can be differentiated. In other words, (72) should be ruled out even as an option but it is unclear how this can be done
under the complex head analysis. Unless this possibility is excluded in a principled way, the complex head analysis
predicts that there should be no additional ban on adjunction.

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5.3. Tsujimura (1993)

Tsujimura (1993) focuses on morphological differences between PEs and SEs. Tsujimura (1993) assumes that while the morpheme -te in SEs has tense specification, -ni in PEs has no tense specification. Based on this assumption, Tsujimura (1993) suggests that adjuncts require [tense] to be interpreted. This condition applies uniformly to both restructuring and non-restructuring sentences. This suggestion correctly captures at least part of the generalization I have obtained. As SEs have a [tense] specification, embedded modification is predicted to be available. Tsujimura (1993) assumes that matrix modification for SEs is unavailable because the matrix predicate becomes an auxiliary. Moreover, as PEs have no tense specification, embedded modification is banned. However, as we have seen above, the difference between the two constructions disappears if we force non-restructuring configurations. In particular, it remains unexplained why non-restructuring PEs allow embedded modification.

In fact, Tsujimura's (1993) motivation for the proposal is her observation that the contrast between PEs and SEs with respect to embedded modification can be observed even in sentences with an accusative object. However, what Tsujimura (1993) fails to note is that embedded accusative objects do not necessarily entail non-restructuring. In other words, examples with an accusative object can involve restructuring as long as the adjacency requirement is respected. This point can be shown by the fact that a clause-bounded NPI -sika in the embedded clause with an accusative object can be licensed by matrix negation (see Tanaka, 1997 and references therein for -sika NPIs)38:

(74) a. Hanako-ga Mary-ni-sika zassi-o watasi-ni ika-na-i. (PE)
   Hanako-NOM Mary-to-SIKA magazine-ACC pass-NI go-NEG-PRES
   ‘Hanako goes to pass magazines only to Mary.’

   b. Hanako-ga Mary-ni-sika zassi-o watasi-te ika-na-i. (SE)
   Hanako-NOM Mary-to-SIKA magazine-ACC pass-TE go-NEG-PRES
   ‘Hanako passes magazines only to Mary and goes (somewhere).’

In (74a and b), the embedded verb is adjacent to the matrix verb. The NPI sika attached to the dative argument of the embedded verb is licensed by the matrix negation. I assume that the accusative Case in these examples is Case-valued by the matrix v. As Tsujimura’s (1993) crucial examples are those in which the two verbs are adjacent, which means that they can satisfy the adjacency requirement, we cannot draw any conclusions based on her original examples. The unambiguous non-restructuring examples discussed in section 2 show that Tsujimura’s (1993) suggestion cannot be correct.

6. Conclusion

I have argued for the following two conclusions: (i) there are (at least) three types of restructuring infinitives in Japanese, which is consistent with Wurmbrand’s (2001) approach to restructuring infinitives and (ii) there is a general ban on adjunction to complements of lexical restructuring verbs, which is best explained by an interaction of spell-out domains and Case-valuation. I have also argued that this ban regulates adverb insertion, adjective insertion, and quantifier raising. This paper further confirms contextual approaches to phases on which phasehood of a phrase is determined contextually (see Bobaljik and Wurmbrand, 2005; Bošković, 2010; den Dikken, 2007; Takahashi, 2010, 2011, among others), and the counter-cyclic nature of adjunction (cf. Stepanov, 2001).

The proposed analysis also has implications for the status of Case. The analysis indicates that Case plays a crucial role in the syntax. Case determines phases (see Miyagawa, 2011; Takahashi, 2010, 2011), and Case of arguments in some context forces movement of the arguments. This is inconsistent with the approaches that push Case outside of the syntax (see Marantz, 1991, among others).

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38 The clause-boundedness of sika is shown by the following contrast:

(i) Taro-ga hon-sika kawa-na-i.
   Taro-NOM book-SIKA buy-NEG-PRES
   ‘Taro buy only books.’

(ii) *Hanako-wa [ Taro-ga hon-sika ka-u-to] omow-ana-i.
    Hanako-TOP Taro-NOM book-SIKA buy-PRES-that think-NEG-PRES
    ‘Hanako thinks that Taro buy only books.’

In (i) the object hon ‘book’ is accompanied by sika and sika is c-commanded by negation in the same clause. However, in (ii) there is a clausal boundary between sika and the negation. The contrast shows that sika must be licensed by negation in the same clause.

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